

Fig. 1

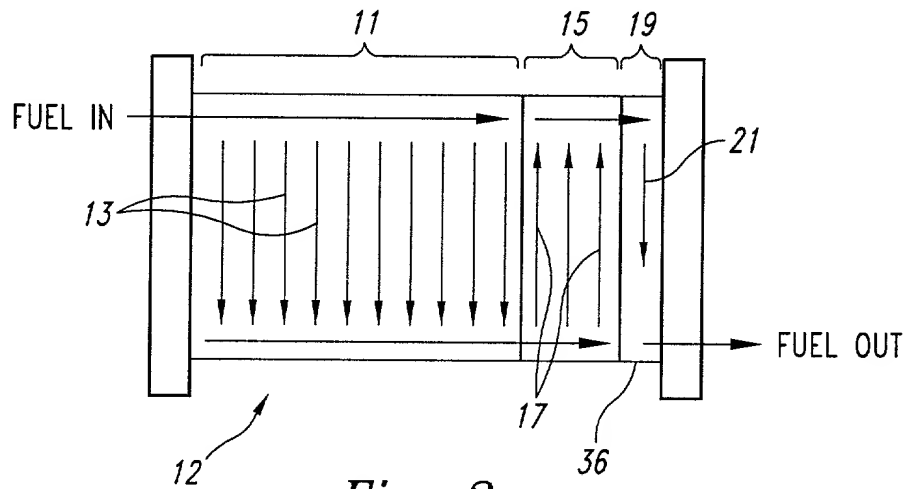


Fig. 2

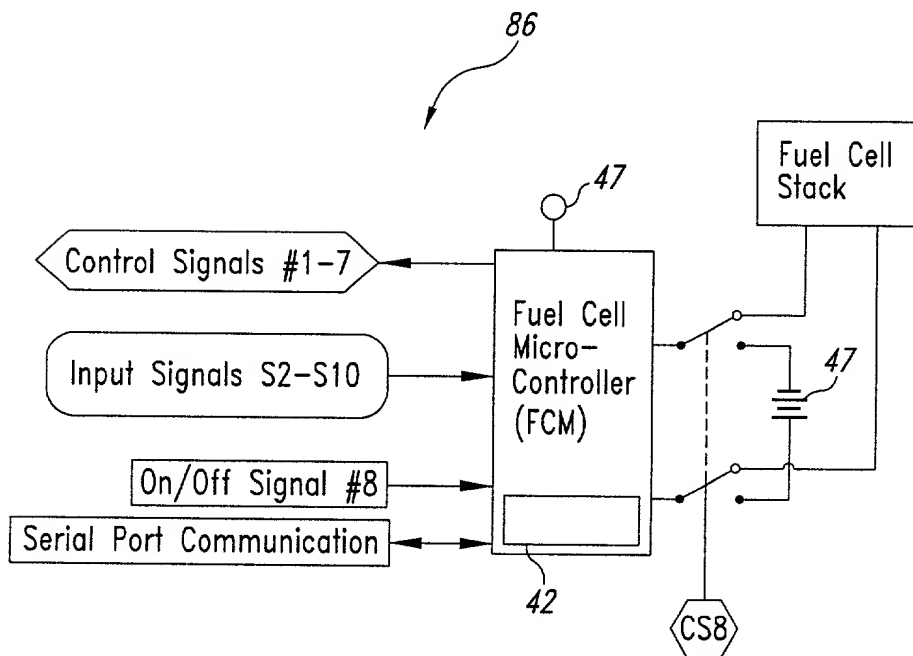


Fig. 4

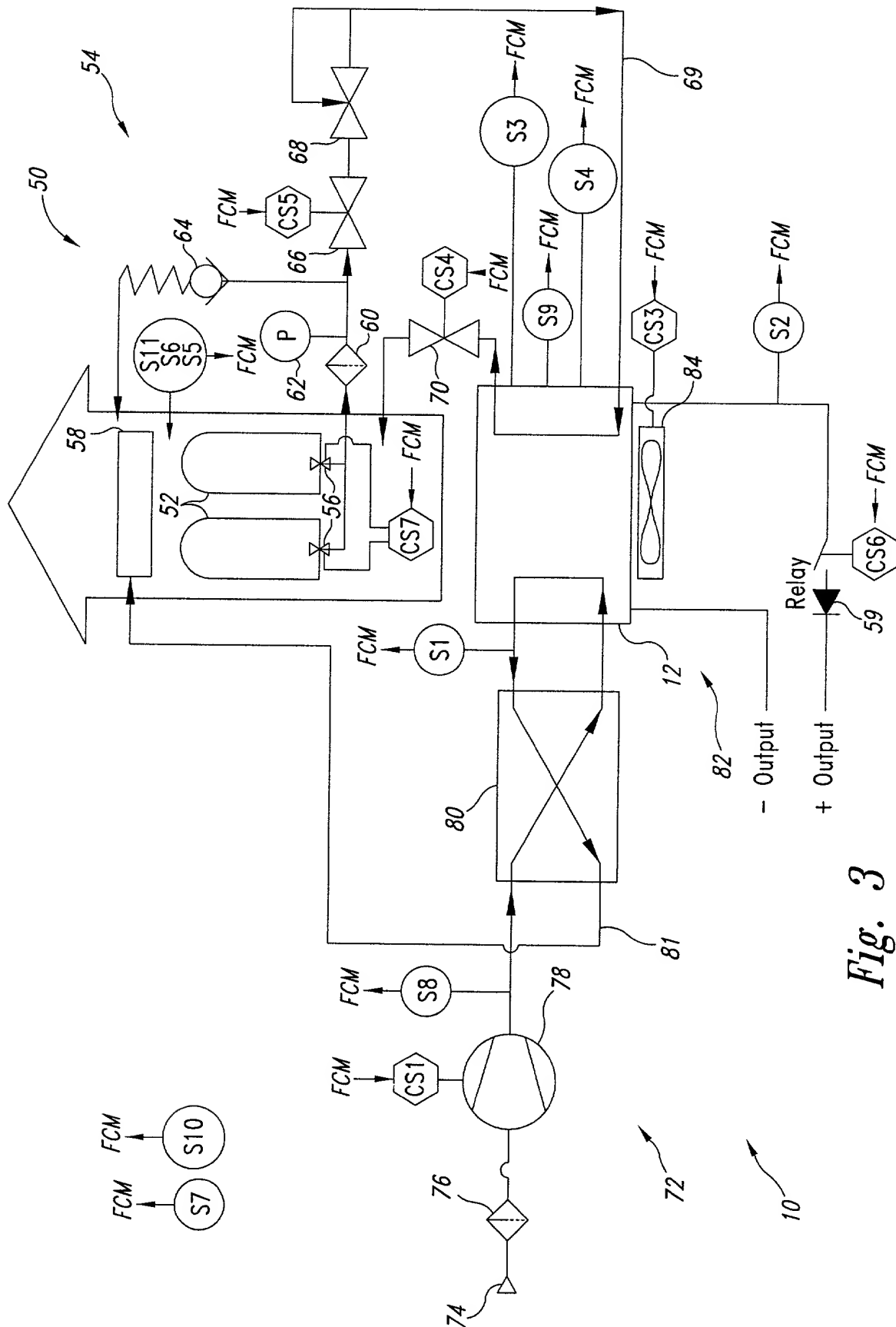


Fig. 3

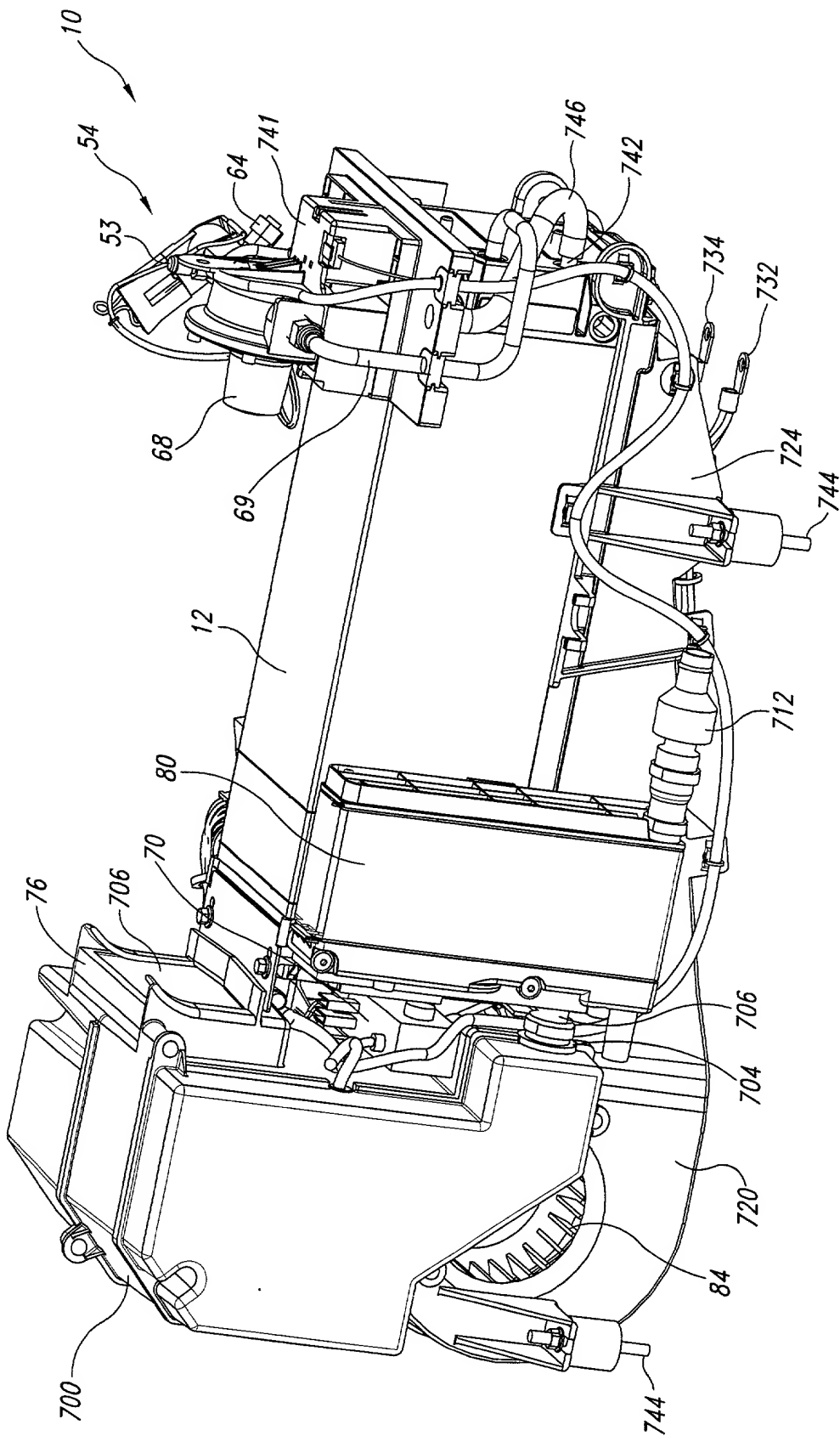


Fig. 5

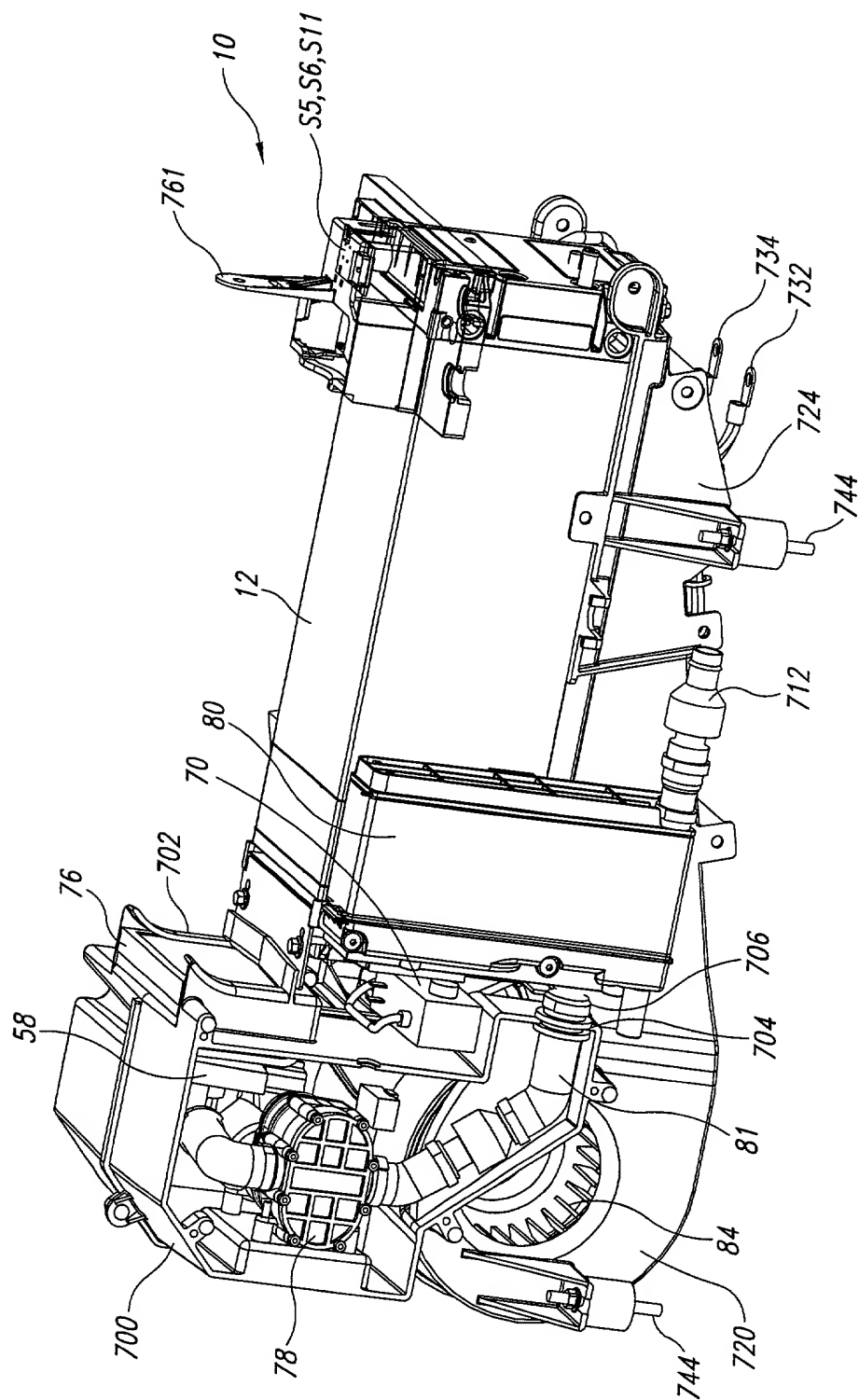


Fig. 6

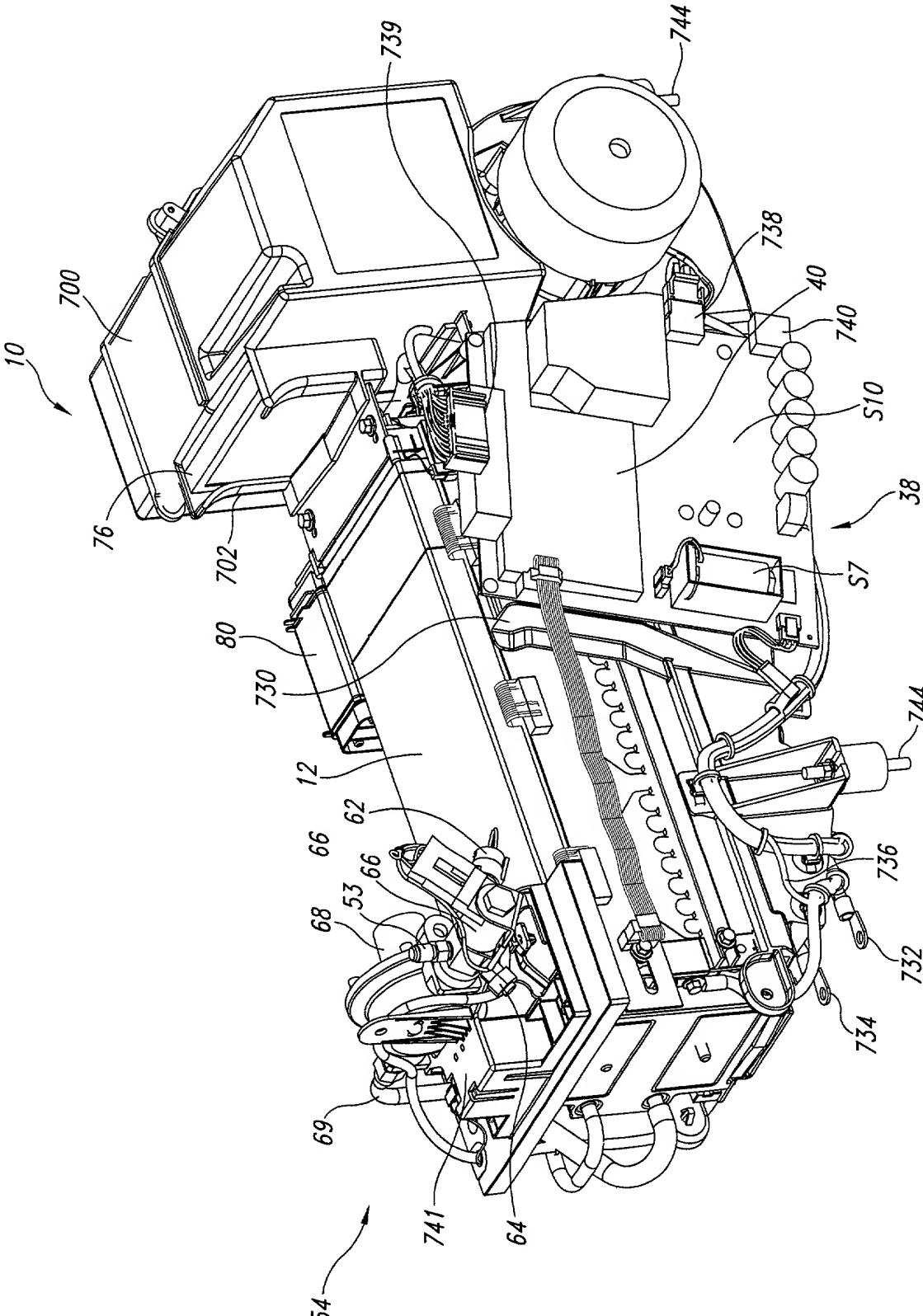


Fig. 7

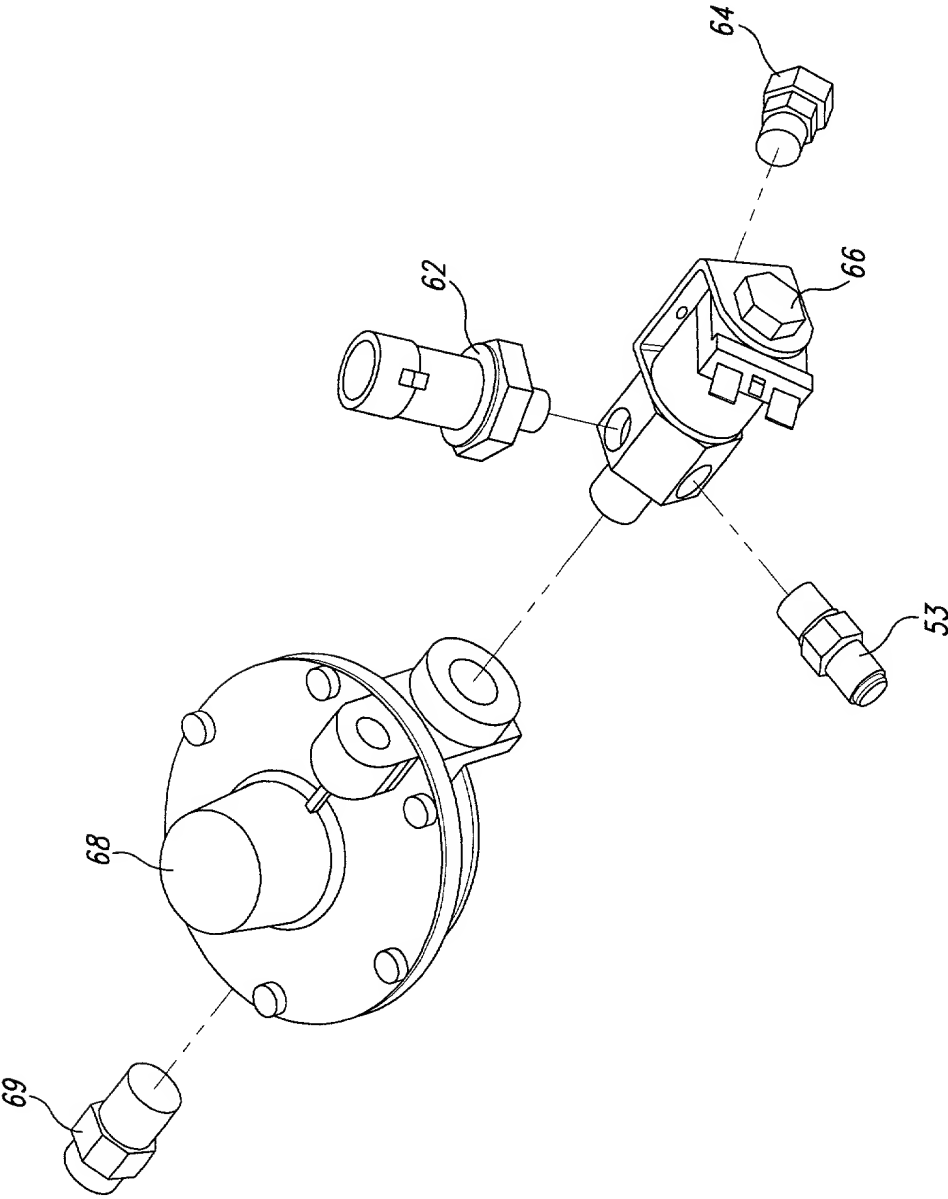


Fig. 8

100



System Task Scheduling Frequency	
System Task Description	Frequency in ms
Monitor Stack Current and Set Air Compressor Duty Cycle	50
Monitor Stack Voltage	100
Monitor Purge Cell Voltage	100
Monitor Cell Voltage Monitor Check	200
Transmit Status Message	200
Toggle Hardware Watchdog Circuit	200
Perform One Dynamic System Self Test Suite Test	200
Monitor Stack Temperature	1000
Adjust Cooling Fan Duty Cycle	1000
Monitor Oxygen Concentration Sensor	1000
Monitor Hydrogen Leak Sensor	1000
Monitor Hydrogen Fuel Pressure Sensor	1000
Monitor Ambient Air Temperature	1000
Monitor Air Flow Feedback Sensor	1000
Monitor Air Compressor 12/3 Voltage Rail Feedback	1000
Monitor Battery Voltage	1000
Monitor DAC Channel A Air Compressor Feedback Voltage	1000
Monitor DAC Channel B Cooling Fan Feedback Voltage	1000
Monitor H2 Sensor Wheatstone Bridge Leg+	1000

Fig. 9

System Task Scheduling Strategy												
Task 1				Task 2				Task 3				Task 4
1	Monitor Stack Current	Monitor Stack Voltage	Monitor Stack Voltage	Cell Voltage Check	Transmit Status	Monitor Stack Temp	Monitor D/A Channel	Toggle Watchdog				
2	Monitor Stack Current	Monitor Purge Cell	Monitor Purge Cell	Transmit Status	Monitor Stack Temp	Calc Fan Duty Cycle	Monitor D/A Channel	Toggle Watchdog				
3	Monitor Stack Current	Monitor Stack Voltage	Monitor Stack Voltage	Monitor Stack Temp	Calc Fan Duty Cycle	Cell Voltage Check	Toggle Watchdog					
4	Monitor Stack Current	Monitor Purge Cell	Monitor Purge Cell	Cell Voltage Check	Transmit Status	Monitor D/A Channel	Toggle Watchdog					
5	Monitor Stack Current	Monitor Stack Voltage	Monitor Stack Voltage	Monitor D/A Channel	Toggle Watchdog							
6	Monitor Stack Current	Monitor Purge Cell	Monitor Purge Cell	Monitor D/A Channel	Toggle Watchdog							
7	Monitor Stack Current	Monitor Stack Voltage	Monitor Stack Voltage	Monitor D/A Channel	Toggle Watchdog							
8	Monitor Stack Current	Monitor Purge Cell	Monitor Purge Cell	Monitor D/A Channel	Toggle Watchdog							
9	Monitor Stack Current	Monitor Stack Voltage	Monitor Stack Voltage	Monitor D/A Channel	Toggle Watchdog							
10	Monitor Stack Current	Monitor Purge Cell	Monitor Purge Cell	Monitor D/A Channel	Toggle Watchdog							
11	Monitor Stack Current	Monitor Stack Voltage	Monitor Stack Voltage	Monitor D/A Channel	Toggle Watchdog							
12	Monitor Stack Current	Monitor Purge Cell	Monitor Purge Cell	Monitor D/A Channel	Toggle Watchdog							
13	Monitor Stack Current	Monitor Stack Voltage	Monitor Stack Voltage	Monitor D/A Channel	Toggle Watchdog							
14	Monitor Stack Current	Monitor Purge Cell	Monitor Purge Cell	Monitor D/A Channel	Toggle Watchdog							
15	Monitor Stack Current	Monitor Stack Voltage	Monitor Stack Voltage	Monitor D/A Channel	Toggle Watchdog							
16	Monitor Stack Current	Monitor Purge Cell	Monitor Purge Cell	Monitor D/A Channel	Toggle Watchdog							
17	Monitor Stack Current	Monitor Stack Voltage	Monitor Stack Voltage	Monitor D/A Channel	Toggle Watchdog							
18	Monitor Stack Current	Monitor Purge Cell	Monitor Purge Cell	Monitor D/A Channel	Toggle Watchdog							
19	Monitor Stack Current	Monitor Stack Voltage	Monitor Stack Voltage	Monitor D/A Channel	Toggle Watchdog							
20	Monitor Stack Current	Monitor Purge Cell	Monitor Purge Cell	Monitor D/A Channel	Toggle Watchdog							

Fig. 10

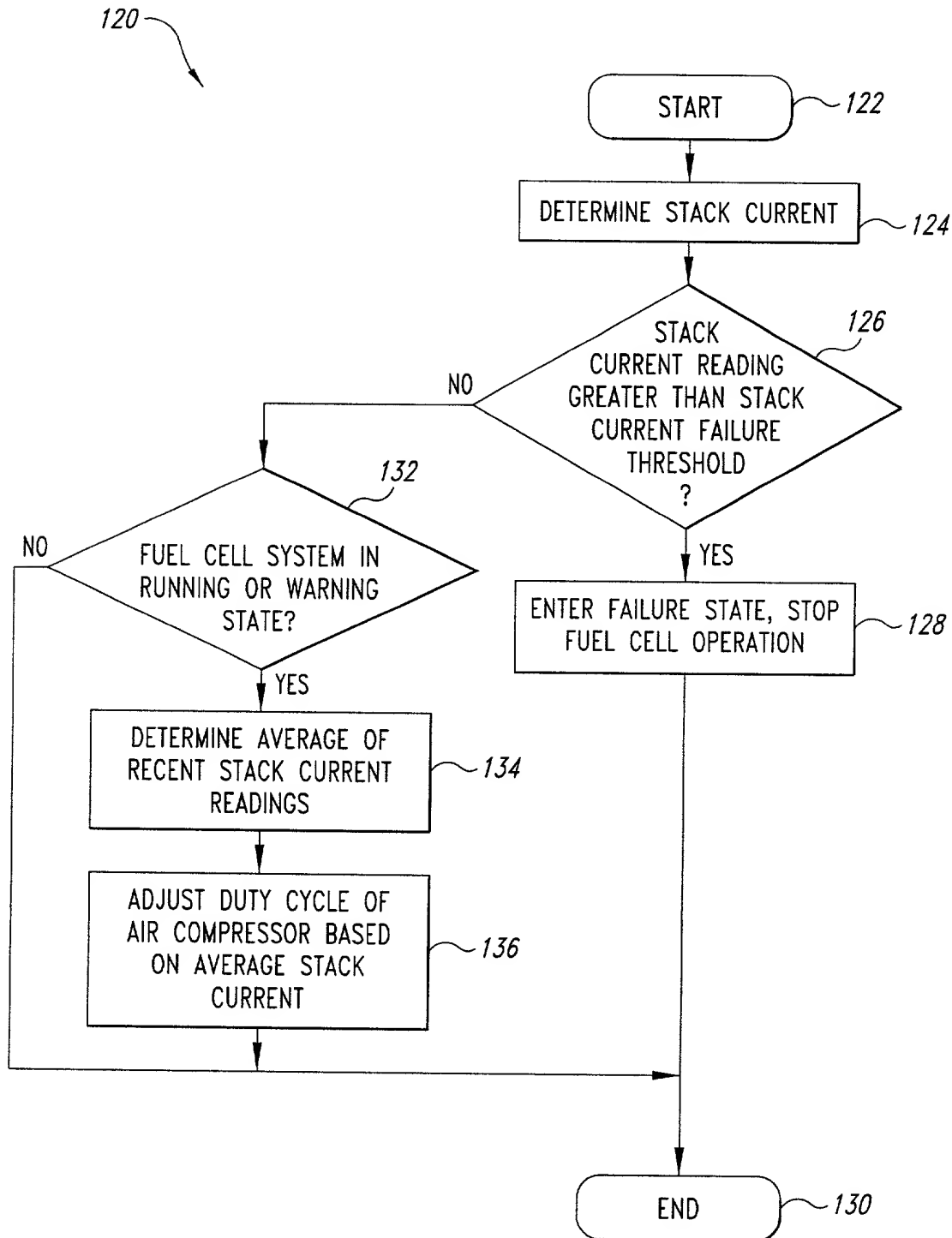


Fig. 11

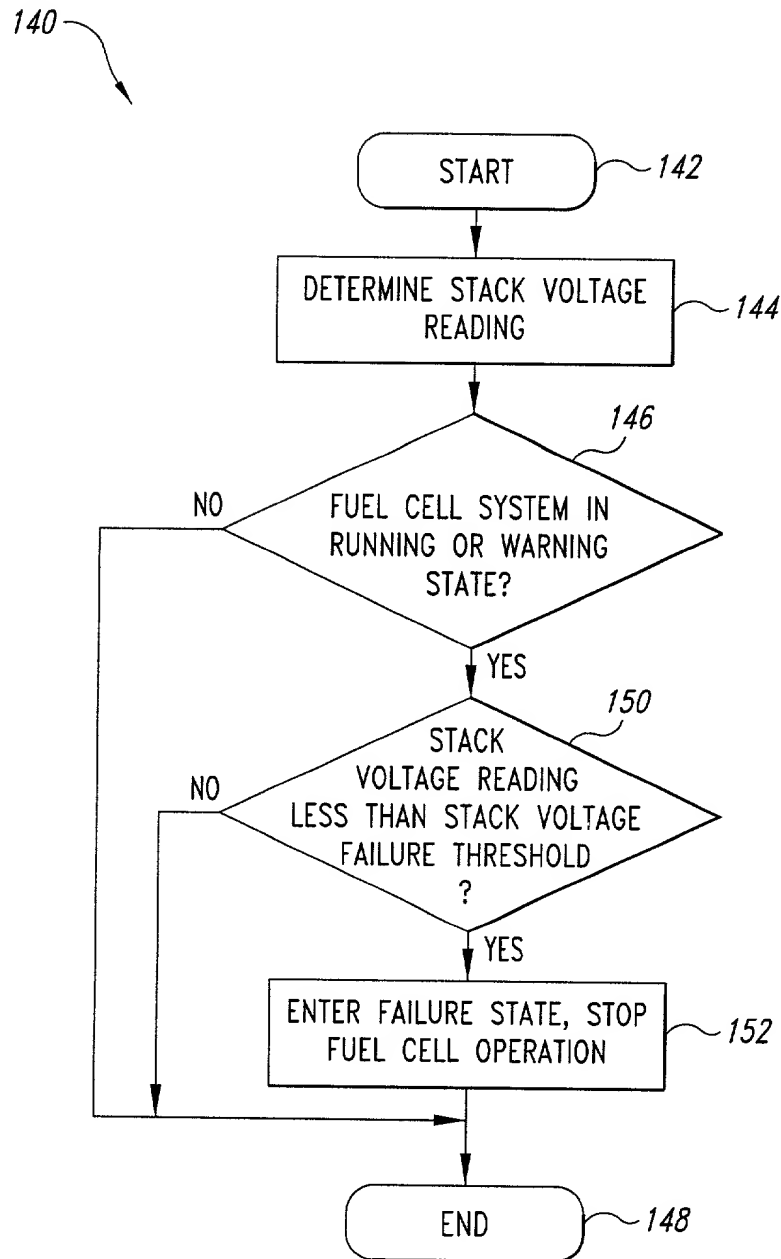


Fig. 12

160

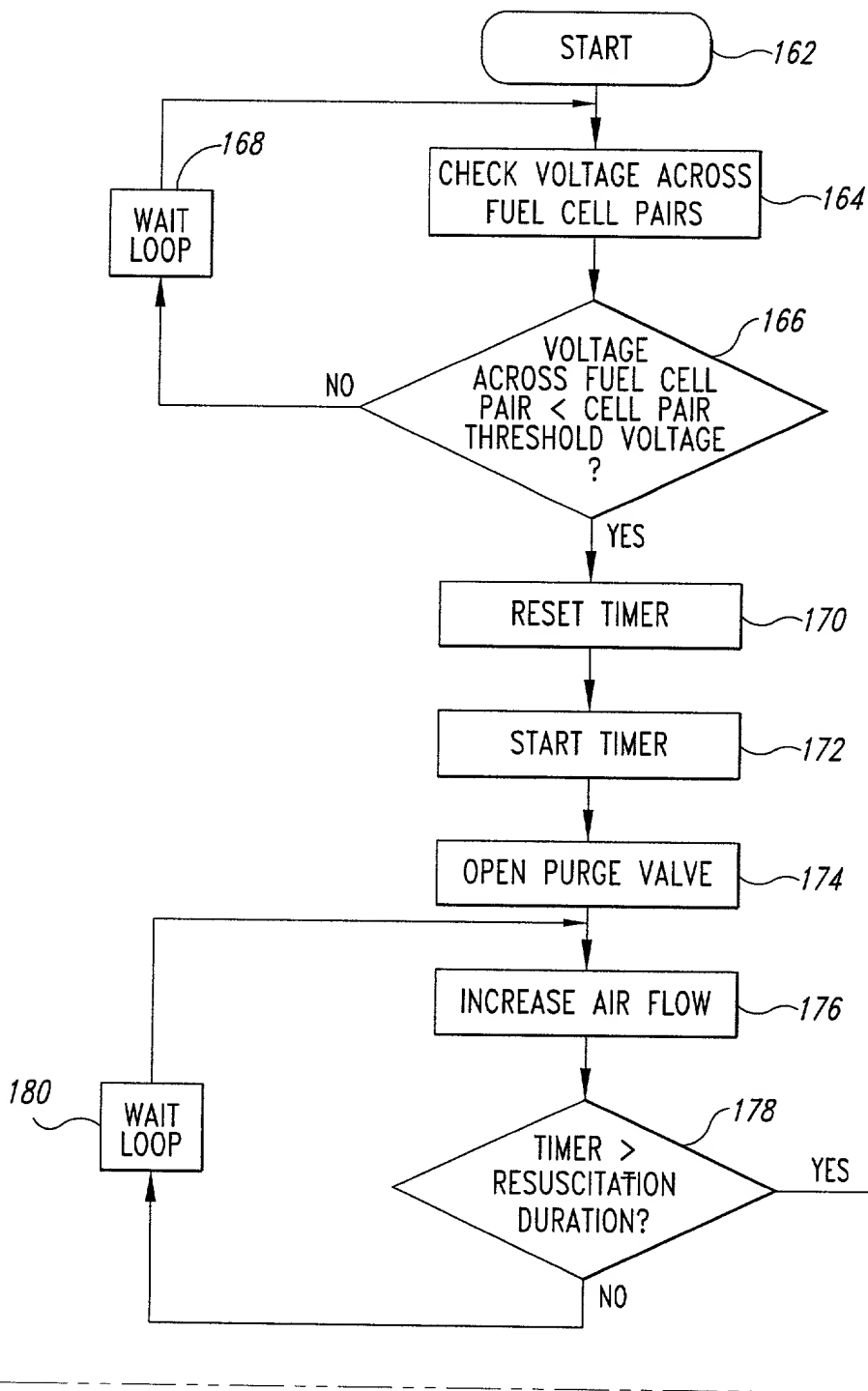


Fig. 13A

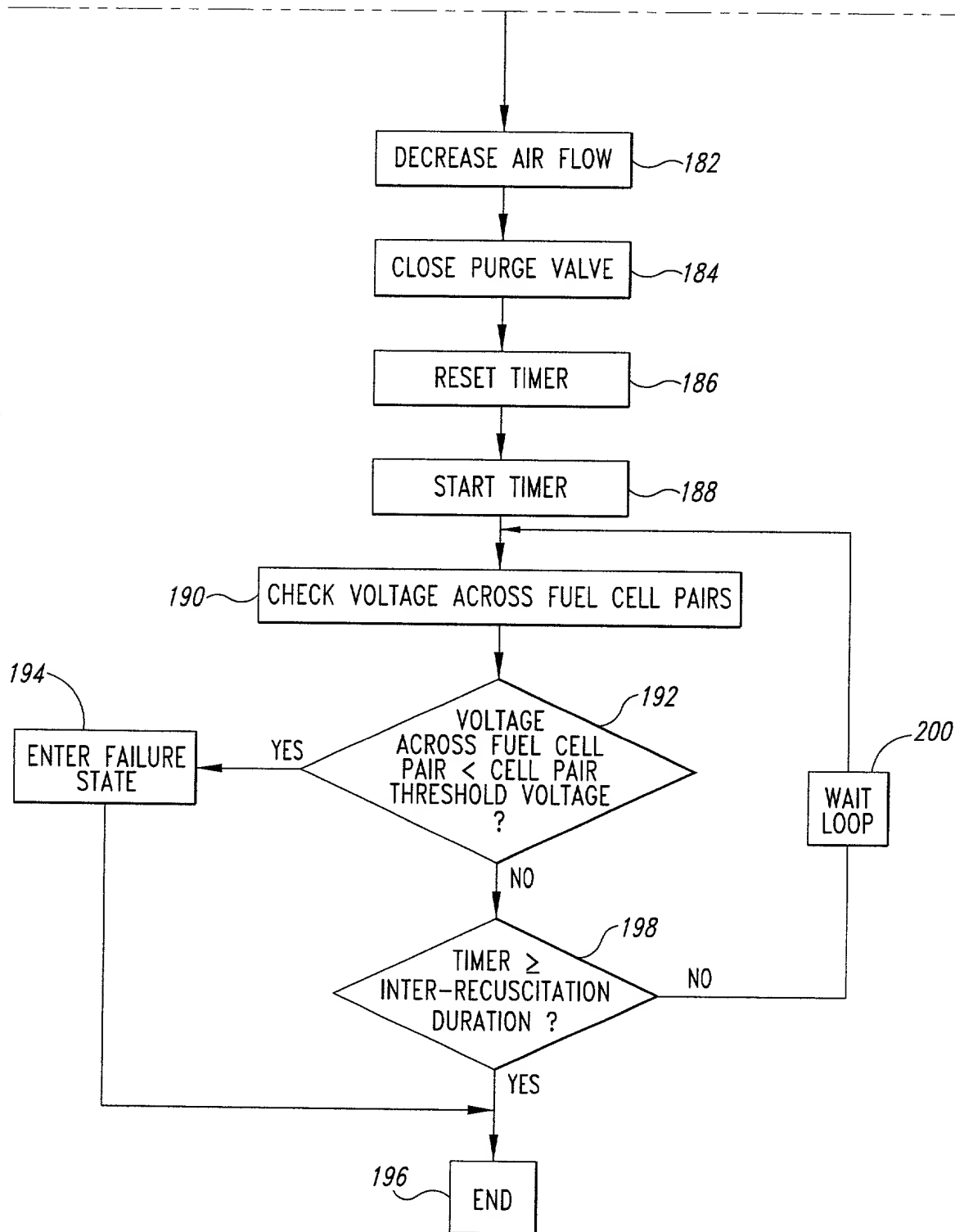


Fig. 13B

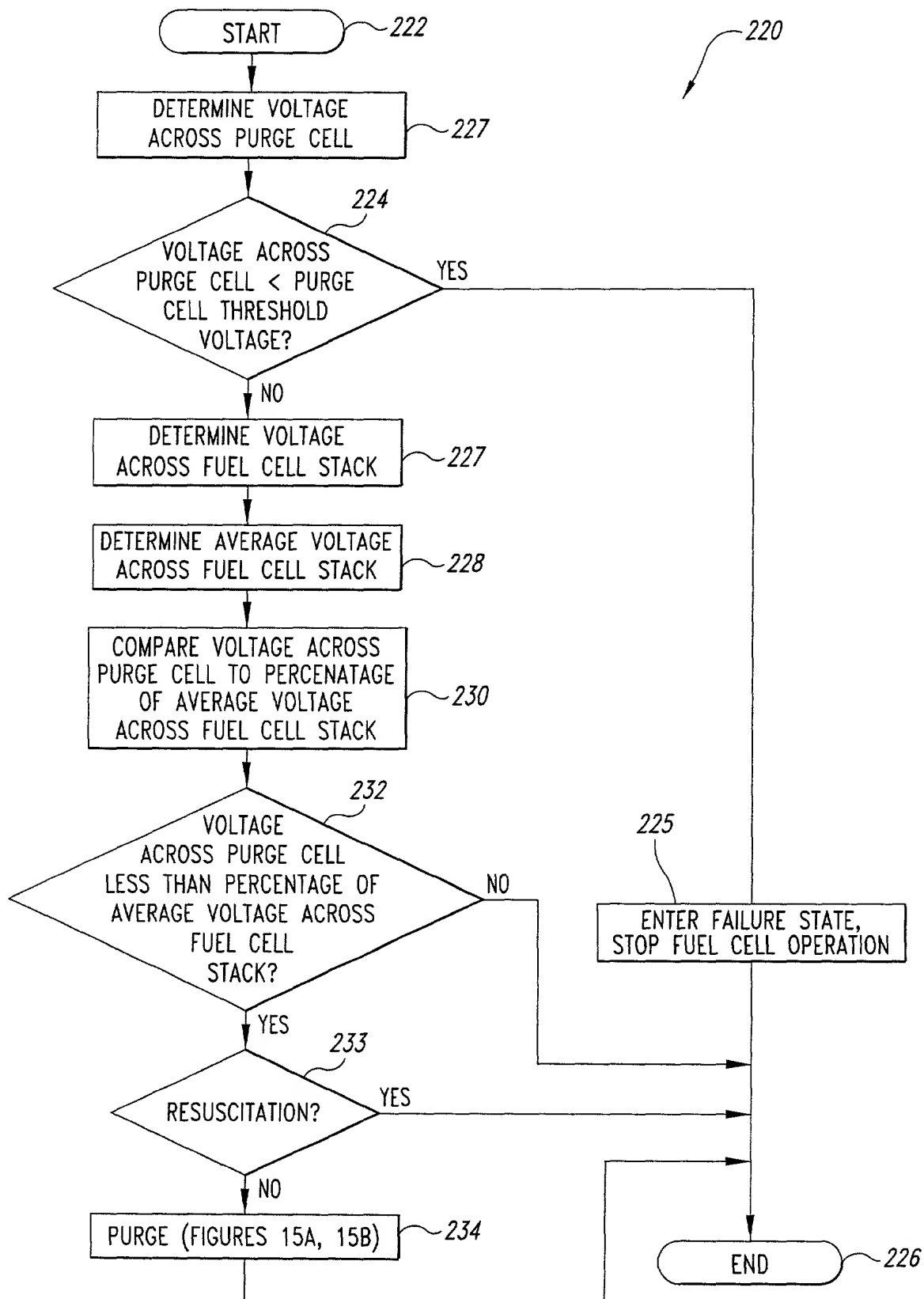


Fig. 14

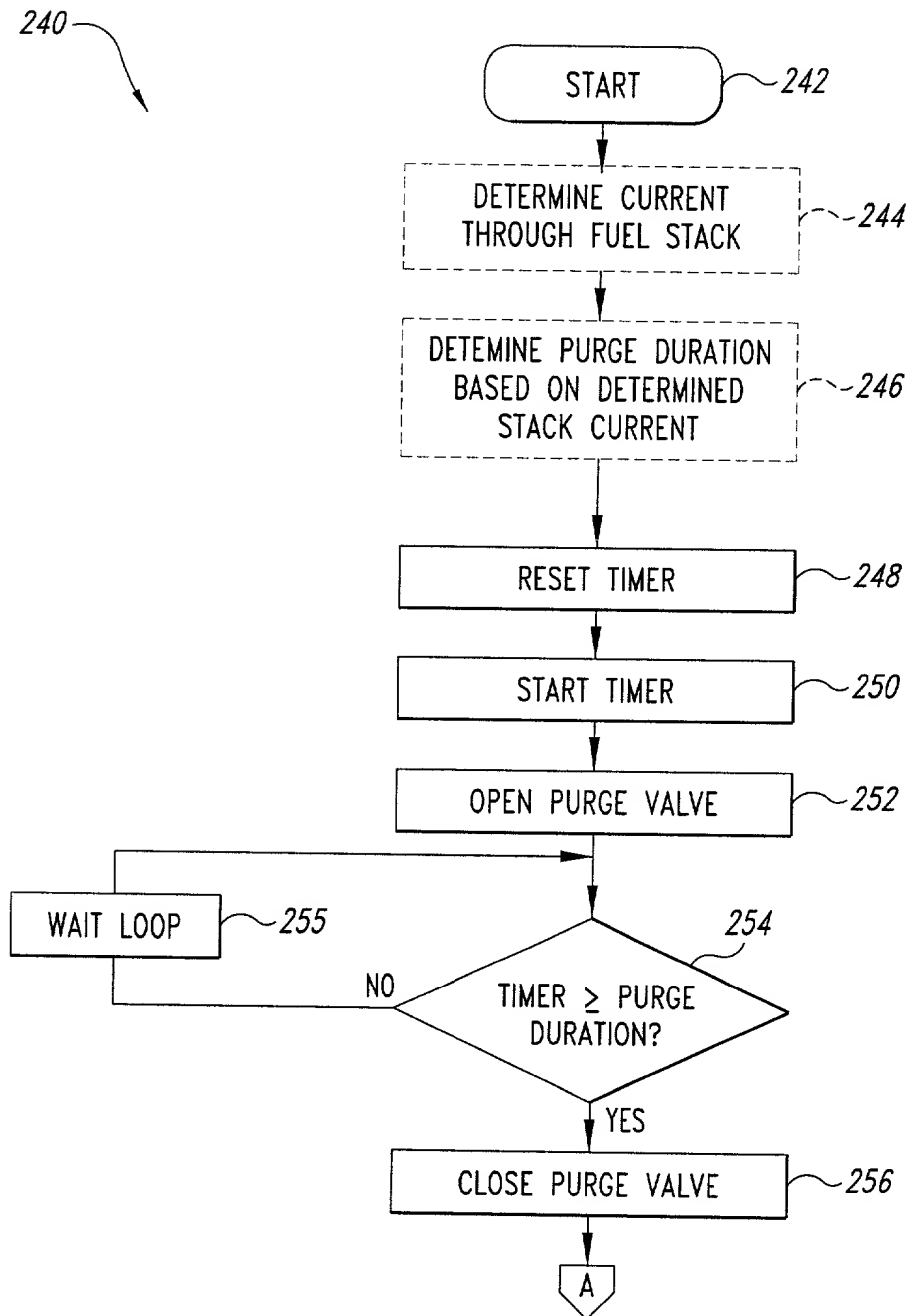


Fig. 15A

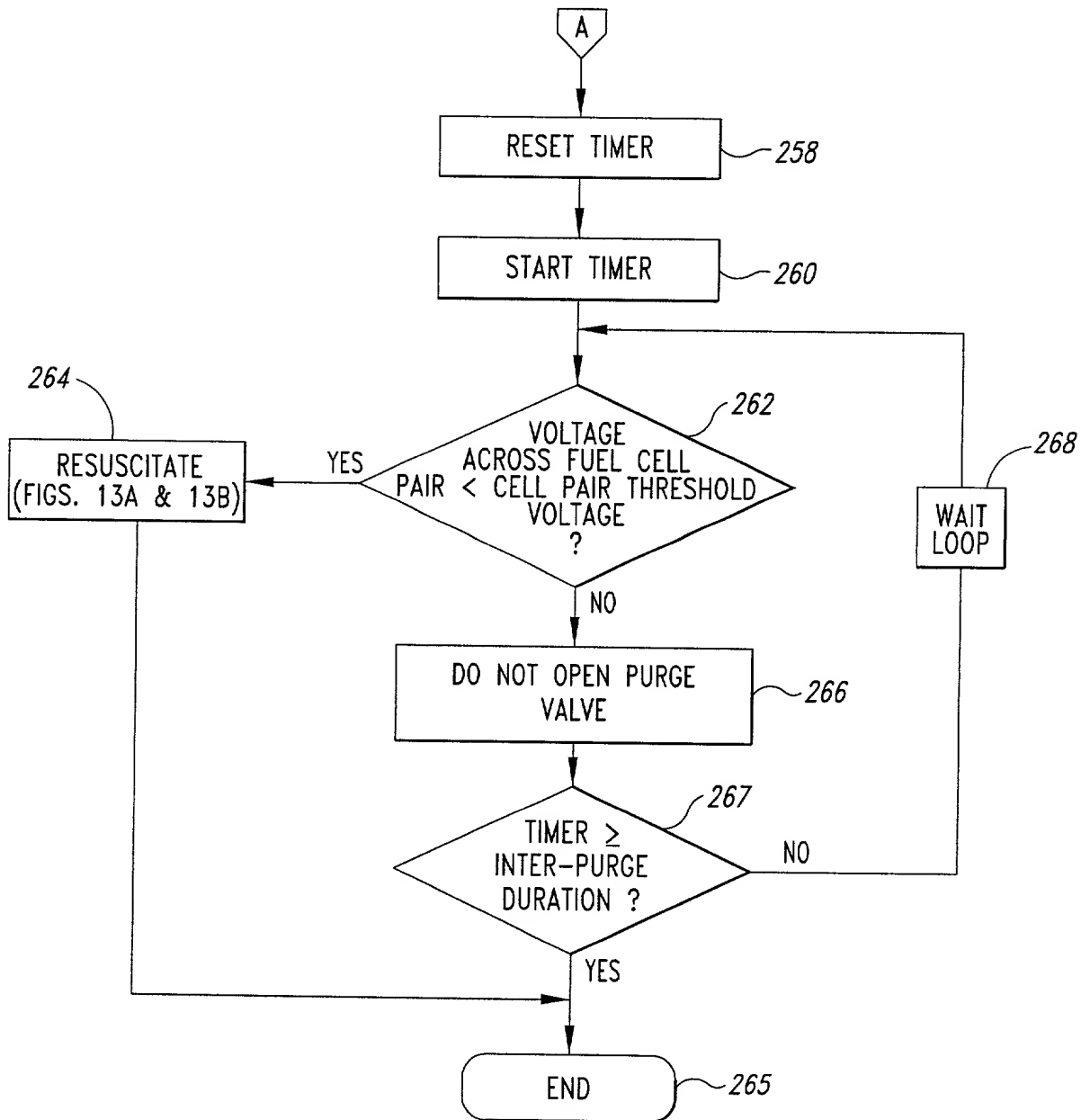


Fig. 15B

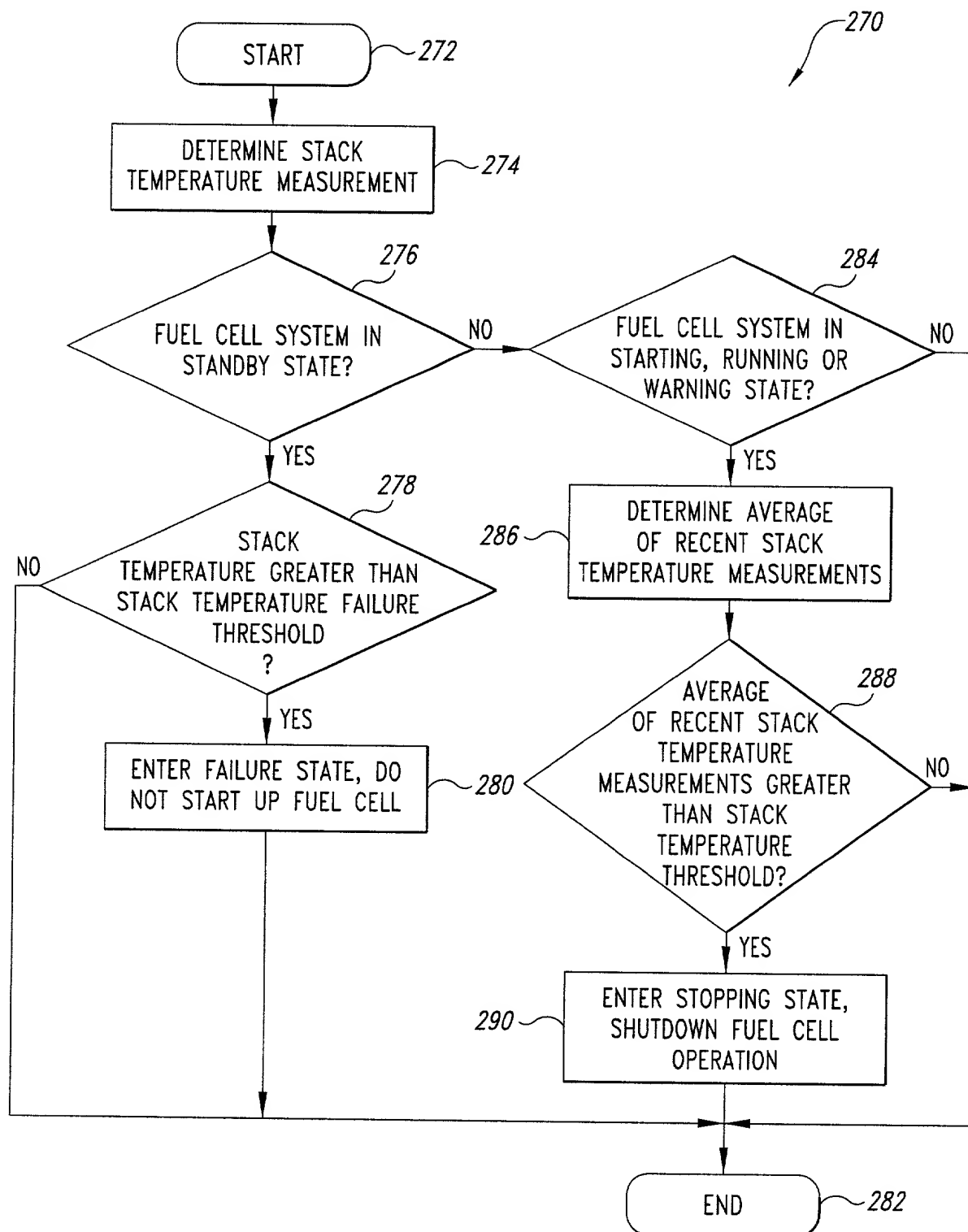


Fig. 16

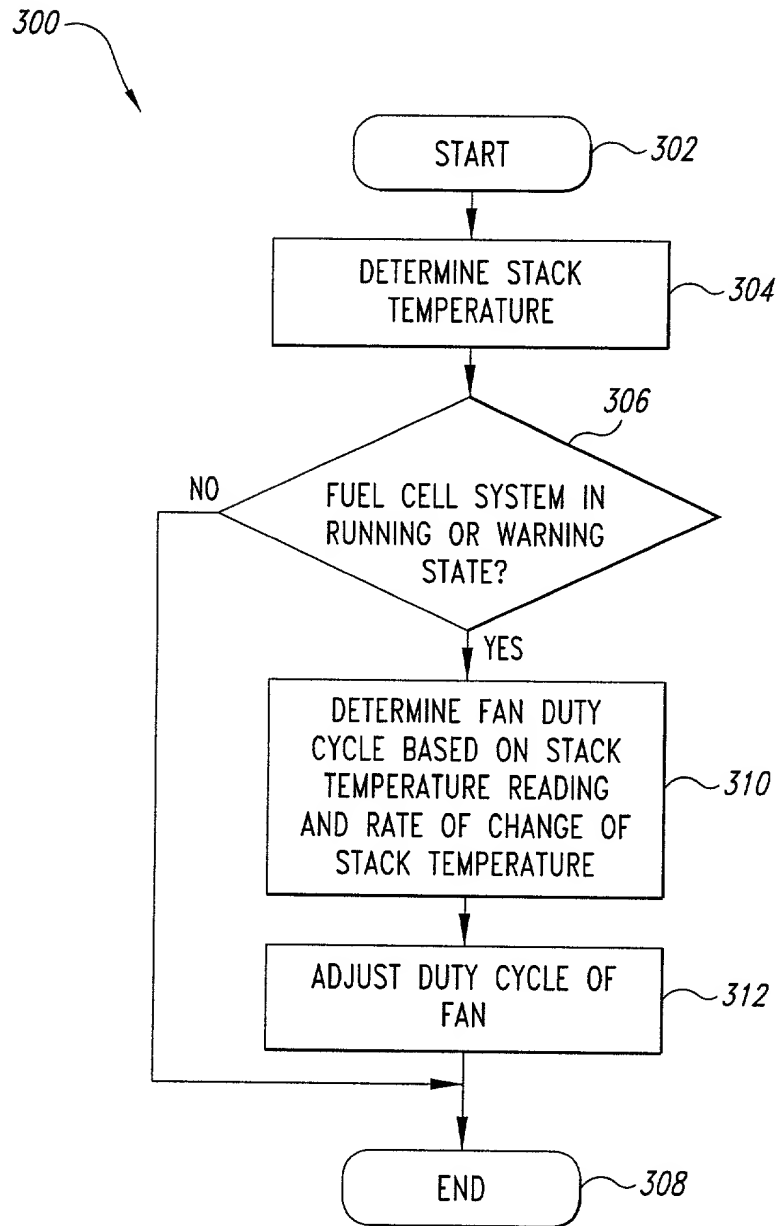


Fig. 17

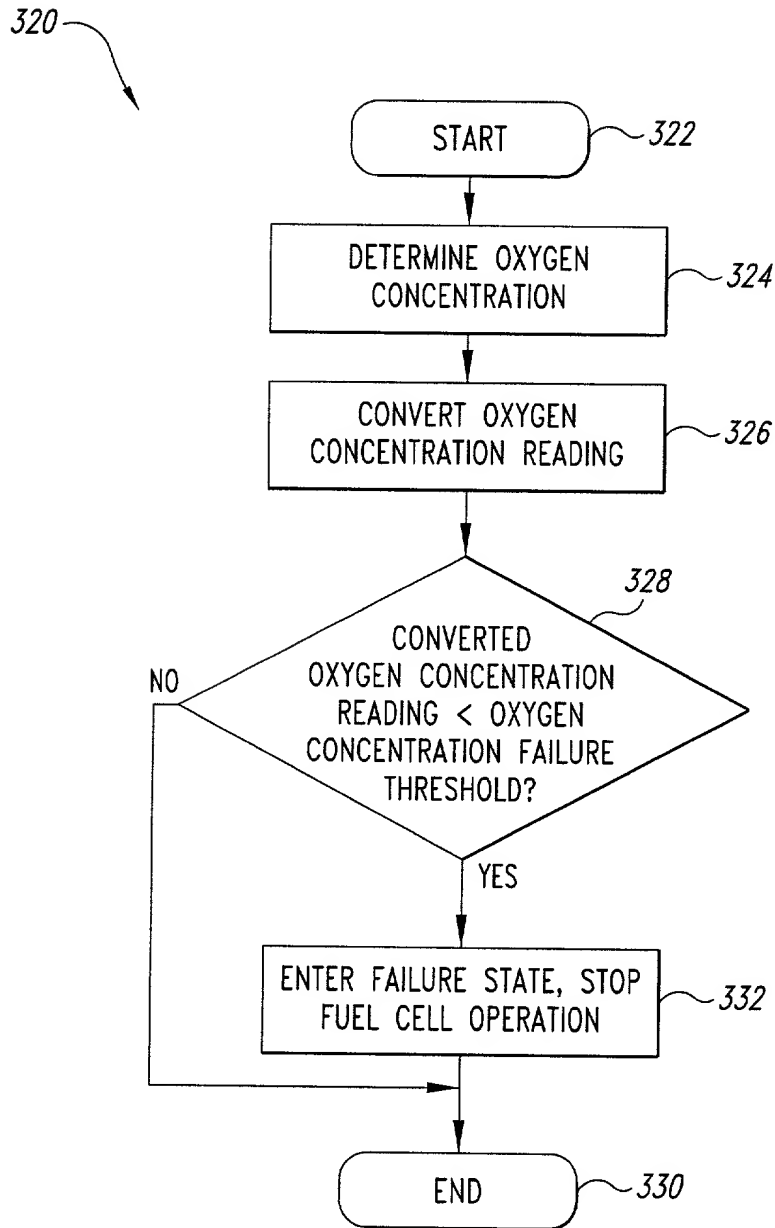


Fig. 18

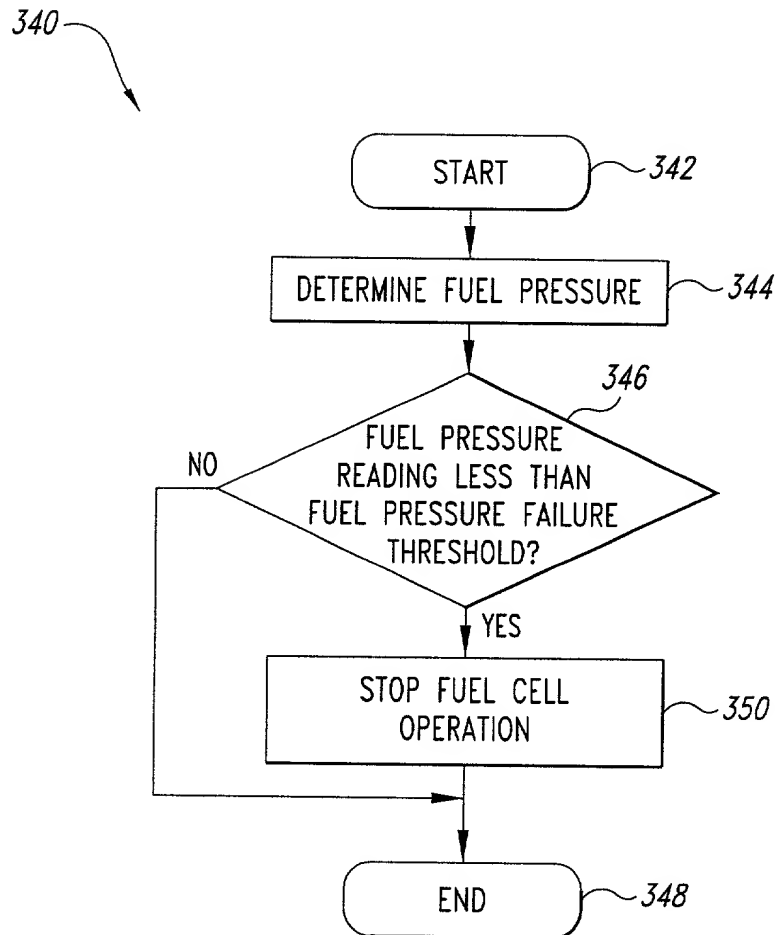


Fig. 19

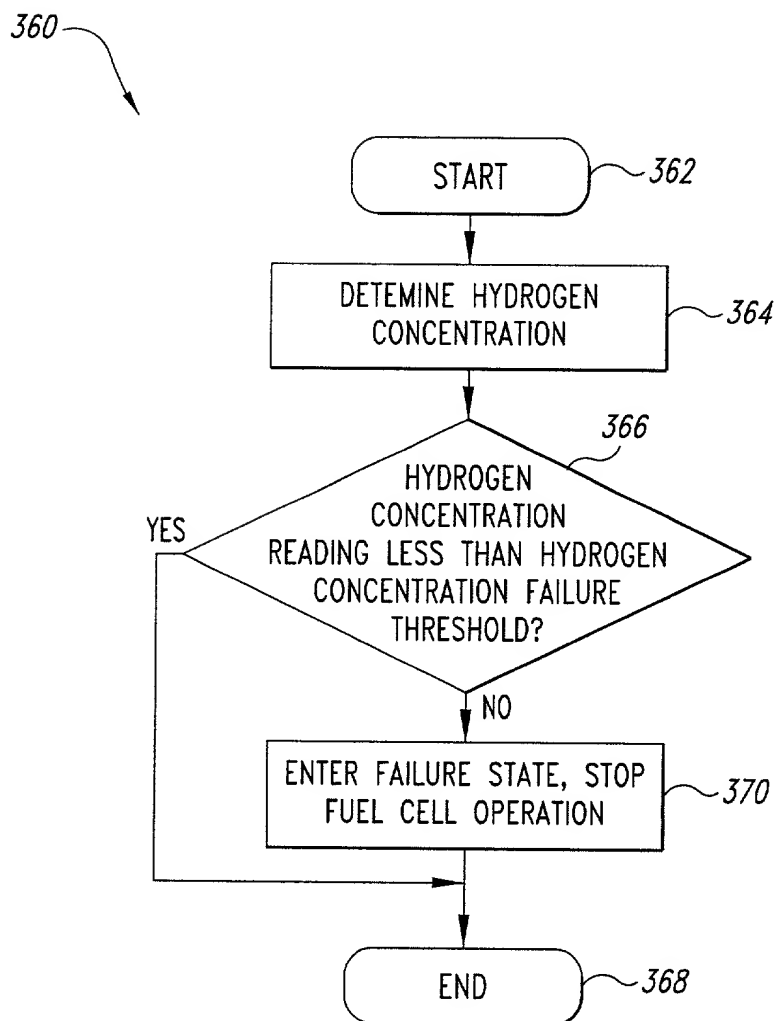


Fig. 20

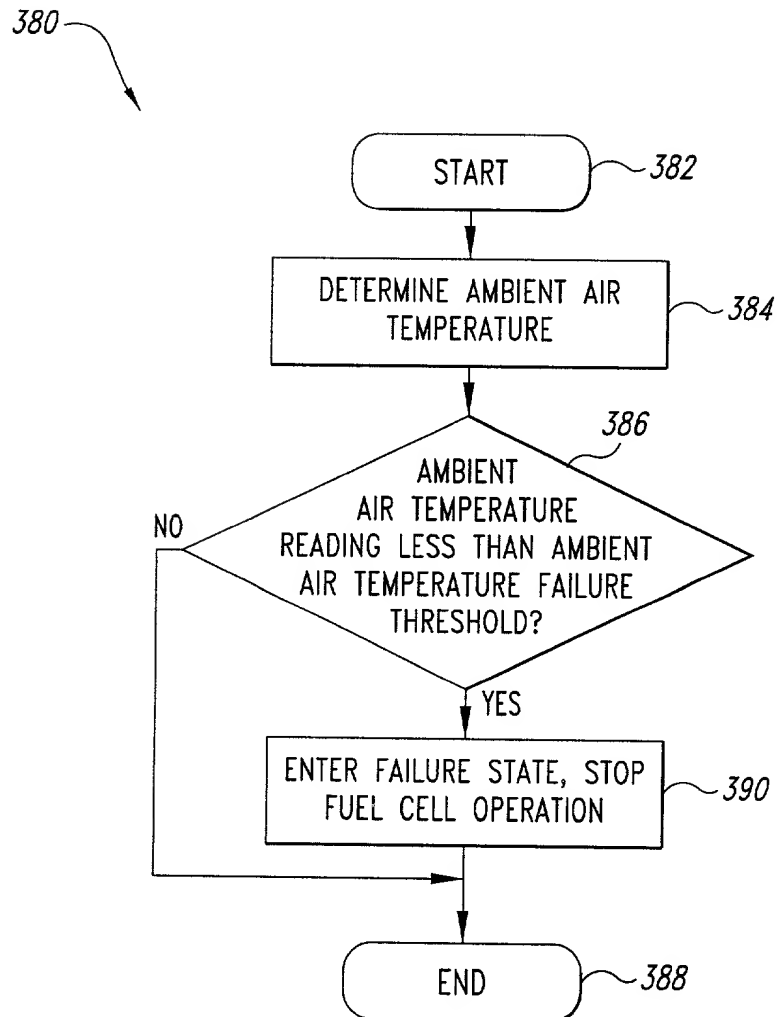


Fig. 21

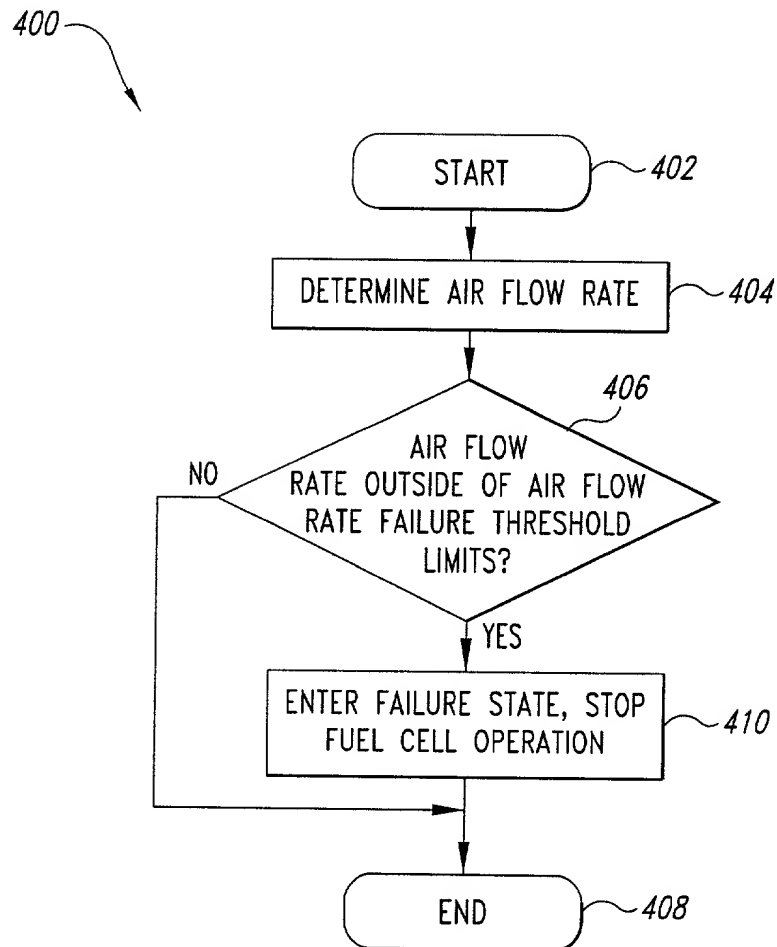
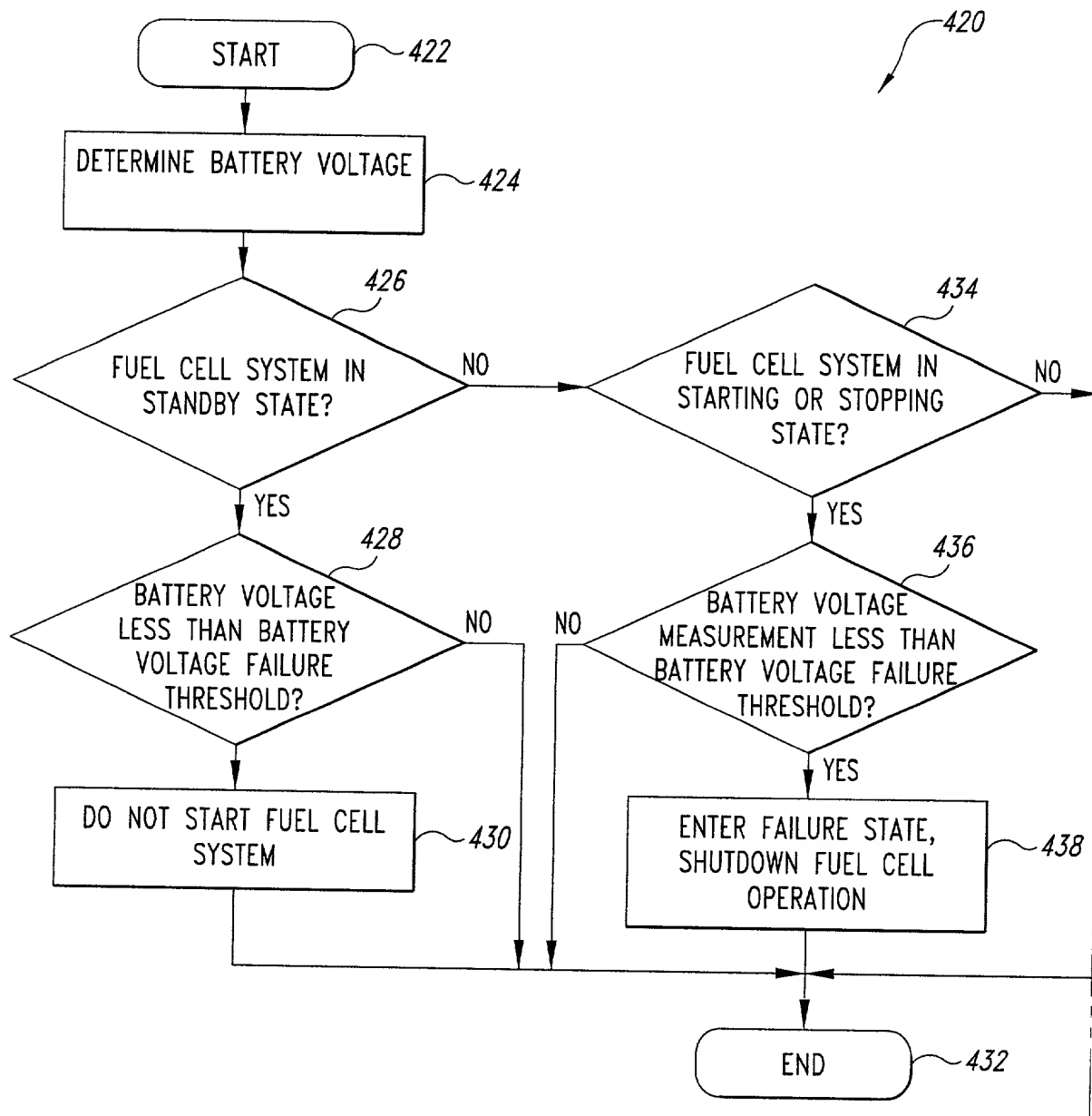


Fig. 22



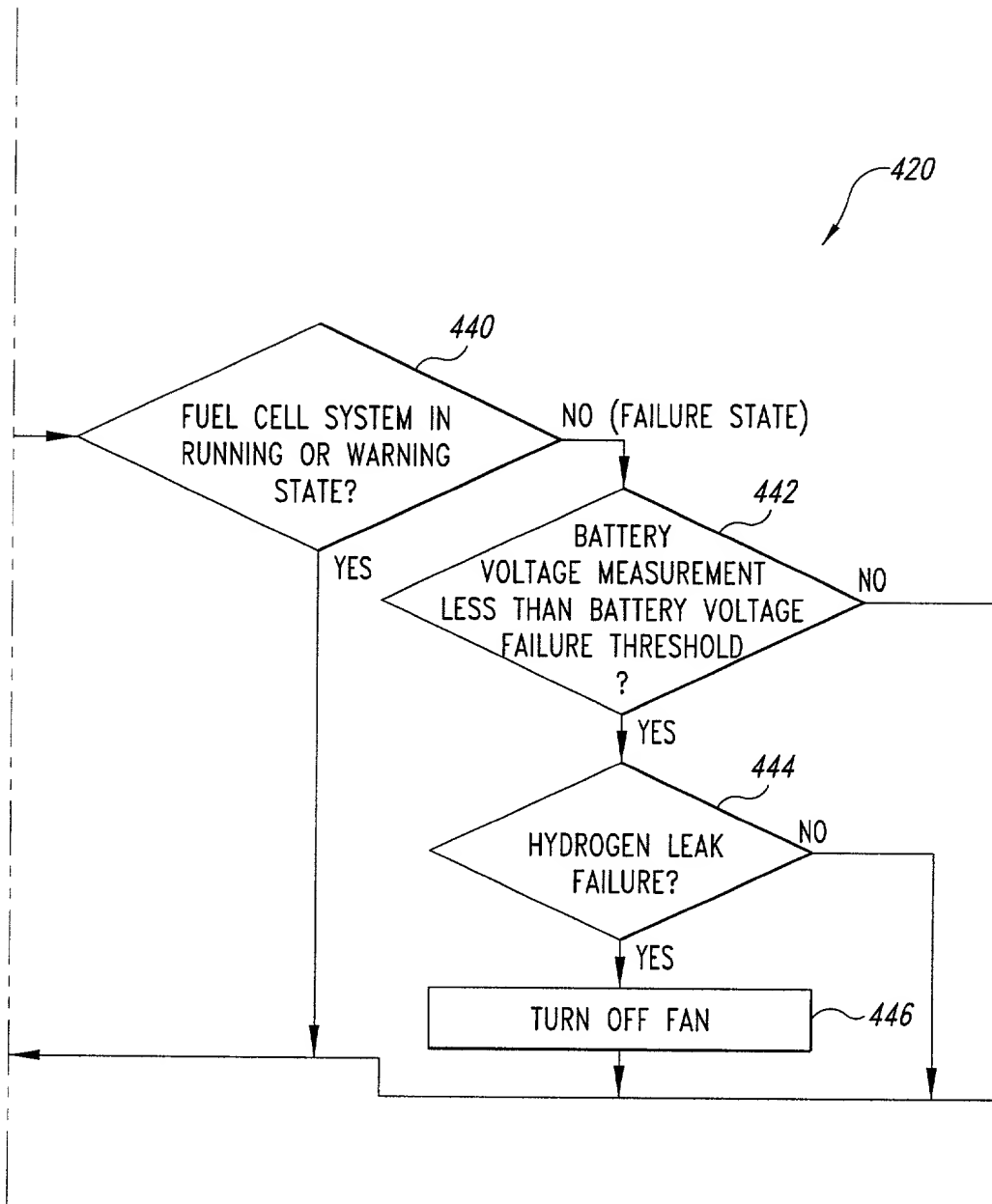


Fig. 23B

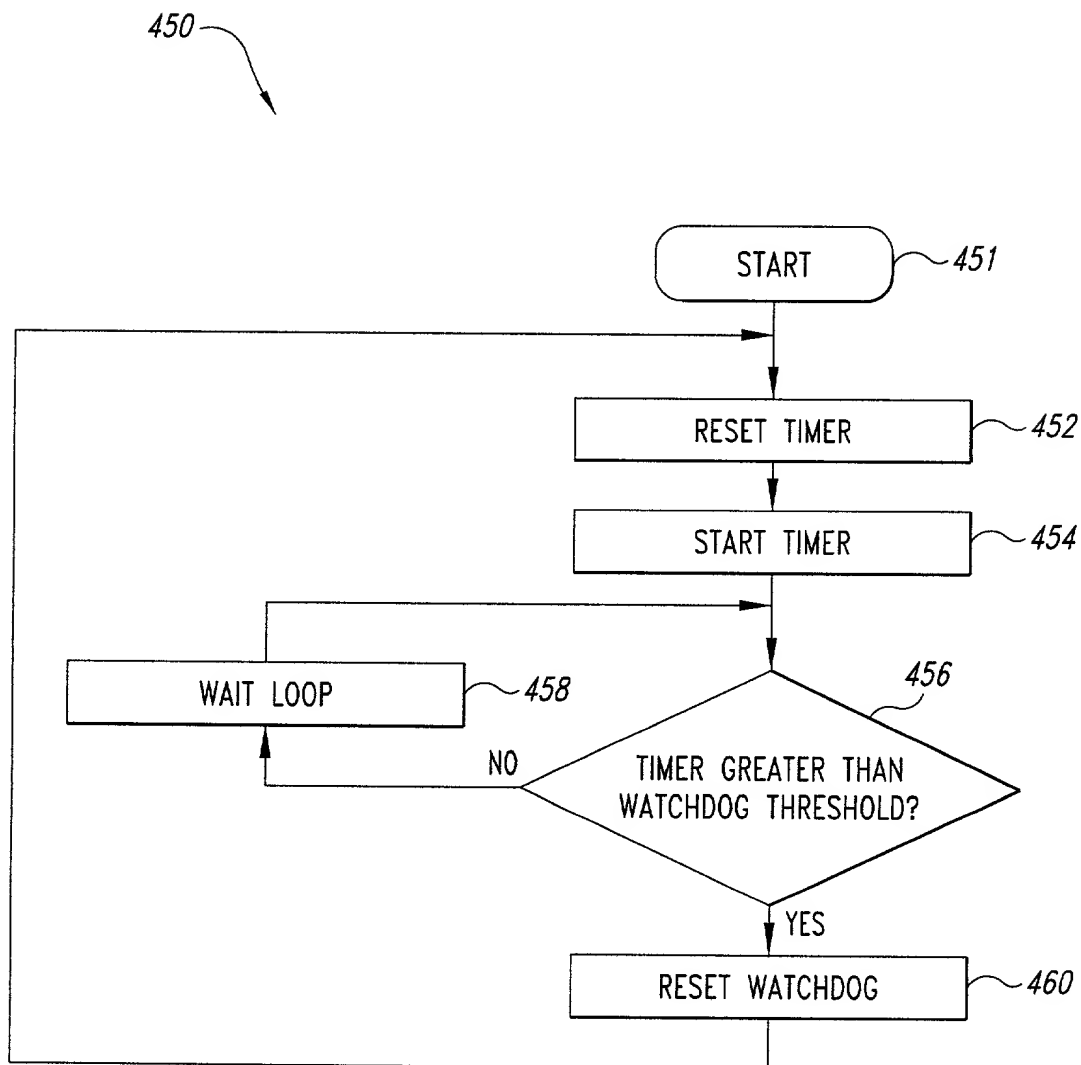


Fig. 24